

# RSC Applied Polymers

[rsc.li/rscapplpolym](https://rsc.li/rscapplpolym)

The Royal Society of Chemistry is the world's leading chemistry community. Through our high impact journals and publications we connect the world with the chemical sciences and invest the profits back into the chemistry community.

## IN THIS ISSUE

eISSN 2755-371X CODEN RAPSBD 3(4) 735-1020 (2025)



### Cover

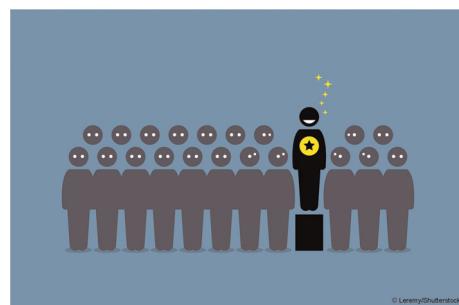
See Parameswar Krishnan Iyer, Franck Meyer *et al.*, pp. 811–819.

Image reproduced by permission of Franck Meyer from *RSC Appl. Polym.*, 2025, 3, 811.

## EDITORIAL

745

Outstanding Reviewers for *RSC Applied Polymers* in 2024

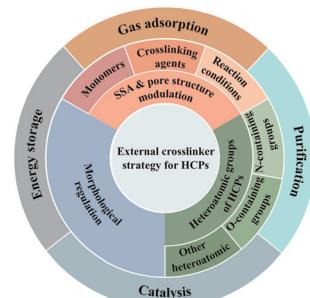


## REVIEWS

746

Hypercrosslinked polymer by an external crosslinker strategy: formation mechanism, structural regulation and applications

Zhengyang Liu, Tao Yang, Yan Song,\* Ning Zhao, Shijie Wu, Zihui Ma, Xiangjie Gong, Xiaodong Tian and Zhanjun Liu



# RSC Advances

**At the heart of open access for  
the global chemistry community**

**Editor-in-chief**

**Russell J Cox**

Leibniz Universität Hannover, Germany

**We stand for:**



**Breadth** We publish work in all areas of chemistry and reach a global readership



**Quality** Research to advance the chemical sciences undergoes rigorous peer review for a trusted, society-run journal



**Affordability** Low APCs, discounts and waivers make publishing open access achievable and sustainable



**Community** Led by active researchers, we publish quality work from scientists at every career stage, and all countries

**Submit your work now**

[rsc.li/rsc-advances](http://rsc.li/rsc-advances)

@RSC\_Adv

## REVIEWS

767

**Multifunctional soft actuator hybrids: a review**

Ji Eun Lee, Yu-Chen Sun and Hani E. Naguib\*



793

**Harnessing near-infrared light for advanced 3D printing**

Patrick Imrie\* and Jianyong Jin\*

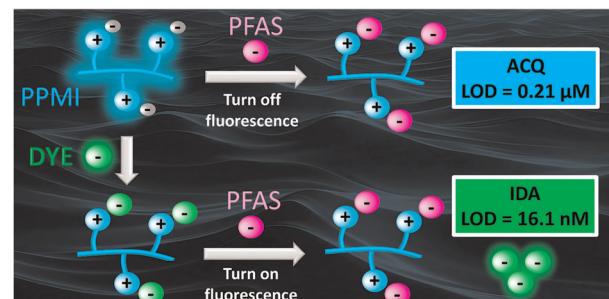


## PAPERS

811

**Dual-modal detection of perfluorooctanoic acid (PFOA) using a single polymer platform: ACQ and IDA approaches**

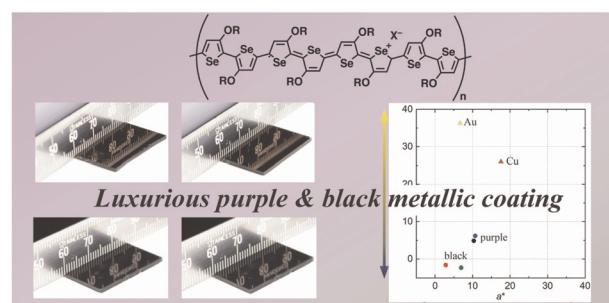
Arvin Sain Tanwar, Parameswar Krishnan Iyer\* and Franck Meyer\*



820

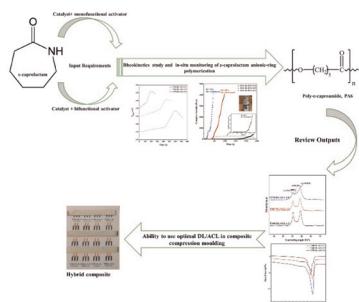
**Black and purple metal-like lustrous films from anion-doped poly(3-alkoxyselenophene) dyes**

Satoru Tsukada,\* Masatsugu Doi, Kan Nogami and Katsuyoshi Hoshino



## PAPERS

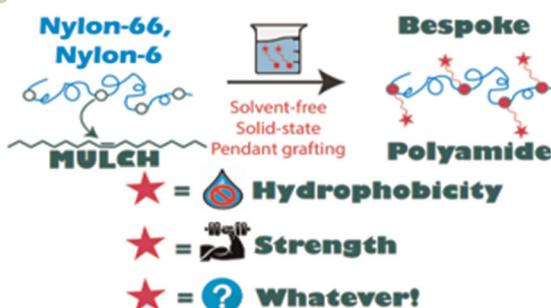
829



## Rheokinetics of $\epsilon$ -caprolactam anionic-ring polymerization applied to the rapid production of thermoplastic composites

Karima Ben Hamou, Ralf Brüning, Gabriel La Plante, Marie-Hélène Thibault, Jacques Robichaud and Yahia Djaoued\*

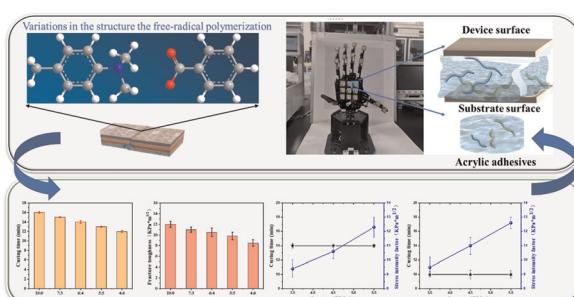
845



## Bespoke polyamides via post-polymerization modification using accessible bioadvantaged monounsaturated long chain fatty acid units

Peter M. Meyer, Dhananjay Dileep, Risha L. Bond, Fasil A. Tadesse, Michael J. Forrester and Eric W. Cochran\*

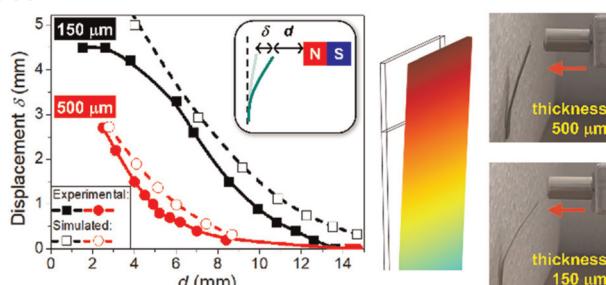
855



## *N,N*-Dimethyl-*p*-toluidine crosslinker enables acrylic-based resin with seamless adhesion and high performance

Zhaoquan Qin, Huakun Xing, Bingbing Wang, Liang Peng, Hai Li\* and Mengjie Long\*

865



## Reversible magnetic soft actuators made of thermoplastic polyurethane and yttrium iron garnet

Mariana Martins da Silva,\* Alejandro Rivelles, José A. Covas, Maria C. Paiva and Mariana P. Proença\*

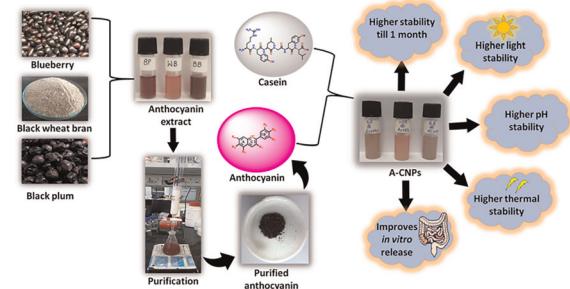


## PAPERS

875

**Development of casein-based nanonutraceuticals by entrapping anthocyanin derived from secondary-agricultural residues: a step towards functional food additives**

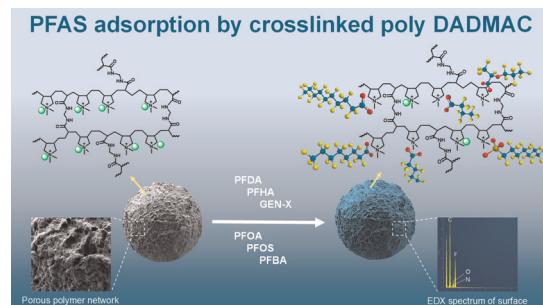
Maninder Meenu,\* Mansi, Anil Kumar Pujari, Monika Garg\* and Jayeeta Bhaumik\*



885

**Synthesis of an anion exchange resin for enhanced PFAS adsorption in water treatment**

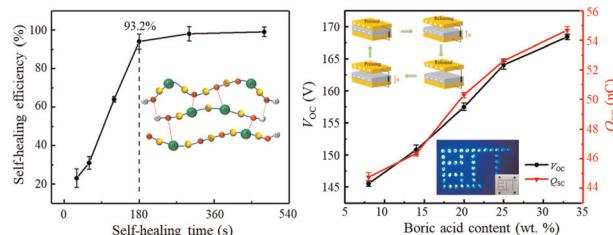
Leila Khazdooz, Amin Zarei and Alireza Abbaspourrad\*



897

**Flexible self-healing polyborosiloxane-based triboelectric nanogenerators for environmental adaptability**

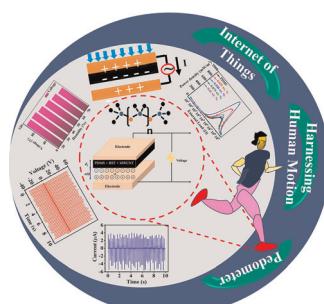
Jiahui Liang, Run Zhao, Jiale Li, Ding Zhao, Panlei Liu, Changyong Tian\* and Na Sun\*



905

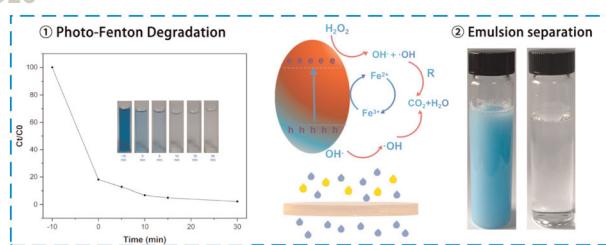
**Energy augmentation of triboelectric nanogenerators using PDMS–MWCNT composites and their applications in IoT and HMI sensing**

Shailendra Kumar,\* Tarun Pratap Singh, Rajesh Kumar Jha, Prashant Sharma, Sumit Sinha-Ray and Ankur Goswami\*



## PAPERS

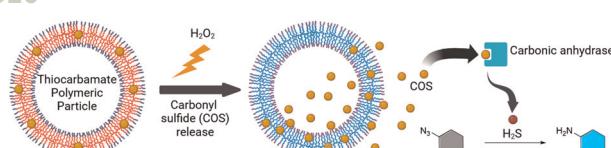
916



## Fenton photocatalytic sponges for rapid separation of emulsified-oil/dyes

Hongliang Zhang and Zhiguang Guo\*

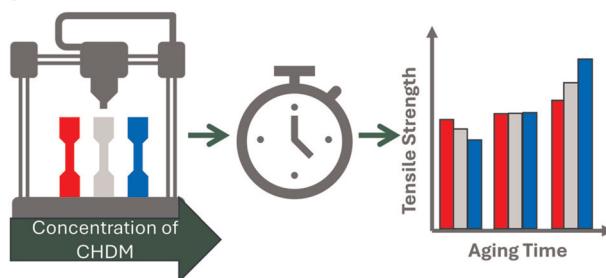
926



## Stimuli-responsive thiocarbamate-based polymeric particles for hydrogen sulfide generation

Daniel A. Paterson, Aggie Lawer, Jared Davidson, Sarah Hook and Allan B. Gamble\*

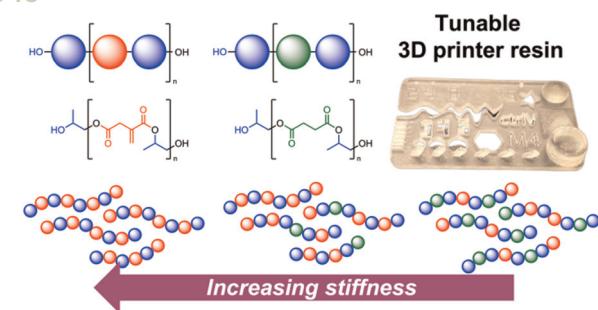
934



## Physical aging and evolution of mechanical properties of additively manufactured polyethylene terephthalate glycol

Sierra F. Yost, Jordan C. Smith, Christian W. Pester and Bryan D. Vogt\*

948



## Composition–property engineering of bio-derived UV-curable acrylate oligoester resins for tunable mechanics in 3D printing

Syed M. Q. Bokhari, Jensen N. Sevening, Jeffrey M. Catchmark and Stephen C. Chmely\*

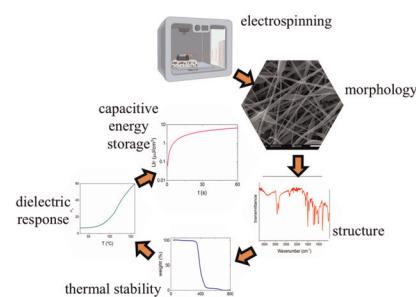


## PAPERS

960

## Fabrication of all-organic nanodielectrics reinforced with electrospun polymer fibres for capacitive energy storage

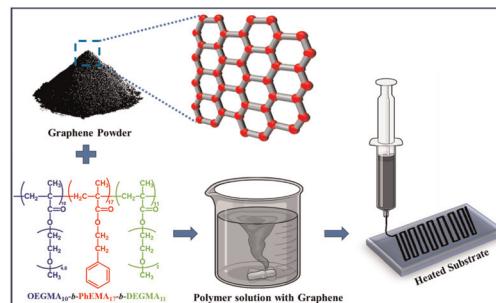
Stavros X. Drakopoulos,\* Konstantinos Louknelis, Marios Triantafyllou-Rundell, Constantinos C. Stoumpos, Maria Chatzinikolaou and Georgios C. Psarras



973

## Graphene inks for printing based on thermoresponsive ABC triblock terpolymer gels

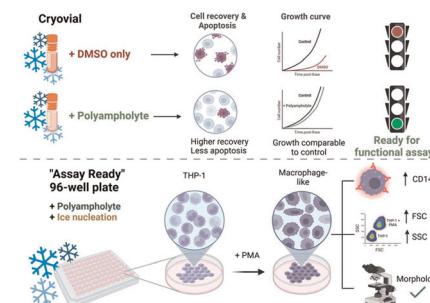
Xu Liu, Bailin Feng, Stefano Tagliaferri, Anna P. Constantinou, Alexandra E. Porter, Cecilia Mattevi and Theoni K. Georgiou\*



990

## Cryopreservation and post-thaw differentiation of monocytes enabled by macromolecular cryoprotectants which restrict intracellular ice formation

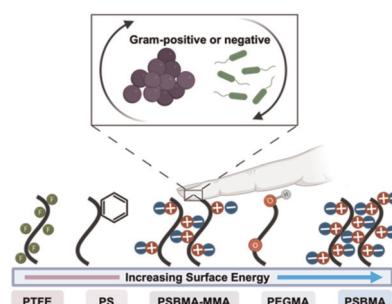
Natalia Gonzalez-Martinez, Ruben M. F. Tomás, Akalabya Bissoyi, Agnieszka Nagorska, Alexandru Ilie and Matthew I. Gibson\*



1002

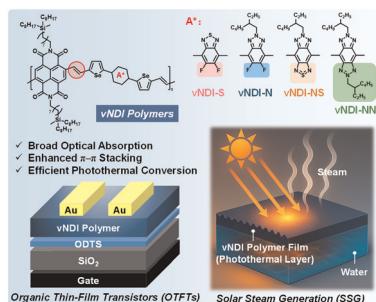
## Touch transfer of microorganisms on polymer surfaces

Meng-Chen Chiang, Carla Steppan, Ted W. Deisenroth, Rupert Konradi, Todd Emrick and Jessica D. Schiffman\*



## PAPERS

1011



## Vinylene-bridged naphthalenediimide-based dual-acceptor copolymers for thin-film transistors and solar steam generation

Chia-Yang Lin, Guan-Lin Wu, Ting-Yu Wang, Waner He, Ying-Sheng Wu, Shunsuke Imaoka, Shohei Shimizu, Wen-Chang Chen, Yoshimitsu Sagara, Chu-Chen Chueh\* and Tsuyoshi Michinobu\*

